

### REMARKS

Favorable reconsideration of this application, in view of the above amendment and in light of the following discussion, is respectfully requested.

Claims 15-24 and 26-27 are pending in the application. Claims 15, 21, 23, and 27 are currently amended. Claims 1-14 and 25 are canceled without prejudice or disclaimer. Support for the amendment of Claim 15 can be found in previously presented Claim 25. Support for the amendment of Claim 21 is self-evident. Support for the amendment of Claim 23 can be found in the published application at paragraph [0045], for example. Support for amended Claim 27 can be found in Figures 1 and 5 and in the published application at paragraph [0045], for example. No new matter is introduced.

In the outstanding Office Action Claim 23 was rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claims 15-27 were rejected under 35 U.S.C. § 103(a) as unpatentable over Downs et al. (U.S. Patent No. 5,951,431, hereafter “Downs”) in view of Dison et al. (U.S. Patent No. 4,038,189, hereafter “Dison”).

With regard to the rejection of Claim 23, under 35 U.S.C. § 112(1), the Office Action acknowledges that the specification supports that adjacent corner portions are different from each other.<sup>1</sup> Accordingly, amended Claim 23 recites that the curvature radii of each of the corner portions is different than a curvature of radii of a *respectively adjacent corner portion*. Accordingly, Applicants respectfully request that the rejection of Claim 23 under 35 U.S.C. § 112(1) be withdrawn.

Amended independent Claim 15 recites, among features, a casing that includes an opening such that the fatigue life of the casing is adjusted by making a shape of the opening

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<sup>1</sup> See the Office Action mailed August 19, 2009, at page 2. See also paragraph [0045] of the published application, for example.

asymmetrical with respect to the longitudinal rotational axis of the casing. Amended Claim 15 also recites that a portion at which the fatigue life of the casing is increased is a **first corner portion at which the tensile stress is generated when forward driving force is input**. Amended Claim 15 clarifies that the first corner portion has **increased strength relative to other corner portions of the opening** of the casing. Furthermore, amended Claim 15 recites that the first corner portion is **heat treated corner portion**.

Turning to the applied references, Figure 30 of Downs illustrates a differential case 112 including a pair of assembly windows 122a and 122b.<sup>2</sup> Downs describes that assembly windows 122a and 122b are contoured to be reverse mirror-imaged, each having a pair of opposed circular edge portions 152 interconnected by a pair of opposed elongated edge portions 154.<sup>3</sup> However, Downs does not suggest or disclose that a first corner portion has increased strength relative to other corner portions and that the first corner portion is a heat treated corner portion.

The assembly windows of Downs are dimensioned as a **function of a pinion gear diameter plus a minimum clearance**.<sup>4</sup> As the Figures of Downs do not illustrate a rotational direction of the input shaft 38, Downs does not suggest or disclose which, if any, is a corner portion at which tensile stress is generated when forward driving is input. In fact, Downs is silent with respect to **any relationship** between the particular geometry of the assembly windows and fatigue life. Therefore, Downs does not suggest or disclose a first corner portion that has increased strength relative to other corner portions.

The Office Action acknowledges that Downs fails to disclose that fatigue life of the casing is adjusted by heat treatment, and applies Dison to cure this deficiency. Dison states that several processes, material details, and component improvements have been utilized to

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<sup>2</sup> See Downs at column 3, lines 6-8.

<sup>3</sup> See Downs at column 3, lines 29-33.

<sup>4</sup> See Downs at column 2, lines 23-26.

permit higher speeds and higher cylinder temperatures in aircraft engine design.<sup>5</sup> The Office Action proposes that it would have been obvious to one of ordinary skill in the art that applying the mechanical processes of Dison with the structure described by Downs discloses a first corner portion that has increased strength relative to other corner portions of the openings of the casing.<sup>6</sup> However, this combination *presumes* that Downs suggests or discloses a relationship between the assembly window geometry and fatigue life.

The Office Action merely illustrates that parts of the inventive combination of Claim 15 were individually known in other arts and suggest that such a showing is all that is necessary to establish a valid case of *prima facie* obviousness. Furthermore, MPEP § 2142 recognizes that “[t]he tendency to resort to ‘hindsight’ based upon applicant’s disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight *must be avoided* and the legal conclusion must be reached on the basis of the facts gleaned from the *prior art*.” (Emphasis added.)

As stated above, Downs does not disclose that the fatigue life of the casing is increased by any particular geometry of the assembly windows. Downs also does not suggest any advantage to selectively strengthen a particular corner portion of the casing. Moreover, the Office Action acknowledges that Downs does not suggest or disclose a heat treated corner portion. Therefore, there is no suggestion to selectively strengthen a particular corner portion of Downs with the mechanical processes recited in Dison **beyond the Applicants’ own disclosure**. Accordingly, even the combined teachings of Downs and Dison fail to disclose or suggest all the features of amended Claim 15. It is respectfully submitted that amended Claim 15 is in condition for allowance.

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<sup>5</sup> See Dison at column 1, lines 17-21.

<sup>6</sup> See the Office Action mailed August 19, 2009, at page 7, lines 18-21.

Dependent Claims 16-24 and 26-27 are respectfully submitted to be in condition for allowance for at least the same reasons as amended independent Claim 15 from which they depend. Moreover, the dependent claims recited additional features not suggested or disclosed by the cited references.

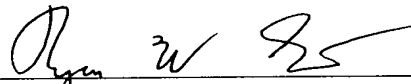
For example, amended Claim 27 recites an output portion and a third corner portion of the opening that has a curvature of radius larger than a curvature of radius of the second corner portion, which is adjacent. Furthermore, amended Claim 27 recites that a thickness of the casing in the given rotational direction at the third corner portion is larger than a thickness of the casing in the given rotational direction at the second corner portion. As can be seen in Figure 5, Downs does not suggest or disclose this feature.

For the reasons discussed above, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. Therefore, a Notice of Allowance for Claims 15-24 and 26-27 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better condition for allowance, the Examiner is encouraged to contact the Applicants' undersigned representative at the below-listed telephone number.

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